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AUTHOR Gregg, Alvin L.
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ABSTRACT

The justification for the Chomsky-Halle Auxiliary Reduction Rule III, called Pretonic Stress Placement (PSP), is questioned from the point of view of the native speaker. The similarity of the PSP and the Main Stress Rule (MSR) is examined through the application of these rules to polysyllabic monomorphemic and polymorphemic words. This analysis is based on the hypothesis that the native speaker divides polysyllabic words considered by the linguist to be monomorphemic, such as "Monongahela" and "Oklahoma," into two morphic units. For these words the PSP is found to be a repetition of the MSR in that two cycles through the MSR achieve the results of the PSP without the addition of the latter rule. Indirect evidence for the native speaker's hypothesized morphic division is found in the morph reshaping processes of clipping and iconic reshaping of loanwords. The need for further attention to speakers' intuitions about lexical analysis is stressed. (KM)

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Capturing Native Intuitions: A Criticism of the Chomsky-Halle Auxiliary Reduction Rules

Alvin L. Gregg
Wichita State University

There is a formidable-looking rule introduced in the Chomsky-Halle rules for English stress called Auxiliary Reduction II in The Sound Pattern of English (Chomsky-Halle 1968) or Auxiliary Reduction III in English Stress (Halle-Keyser 1971). (Although the details of the rules differ somewhat in the two books, I shall cite the rules as they are given in the latter book, since it seems to revise intentionally earlier versions of the rules. But I rely on the discussion in both books.) This rule, which I shall call Pretonic Stress Placement, or PSP, is number 4 on the list of rules on the next page. It is part of this rule that I wish to consider in this paper.

I do not question this rule because it looks so formidable (although that might make one pause), nor because it doesn't work. As far as I can tell, it does work very well. I intend to raise questions about the justification for the rule from the point of view of the native speaker. If one begins to tamper with inter-related rules, what results may resemble the jumble of parts in a three-speed bicycle gear changer. It may be impossible to get anything to work again. Therefore, I intend to accept the rest of the Chomsky-Halle-Keyser rules as I discuss this one. The list of rules on the next page includes the pertinent rules for my discussion, some of them being simplified for the sake of exposition.

Chomsky, Halle, and Keyser indicate doubts about PSP, because its first line resembles their formulation of the Main Stress Rule; they particularly mention the weak cluster principle that is found in both rules. A comparison of Main Stress Rule subparts 1a and 1b with PSP subparts 4a and 4b will reveal this parallelism in the rules. Halle and Keyser admit that "at present... this parallelism can not be formally expressed in our notations because the Main Stress Rule cannot be ordered next to the PSP rule... . This may be due to a shortcoming in the notational apparatus or to a lack of understanding on our part concerning the phonetic processes or both" (1971:50). I intend to make some suggestions for a deeper understanding of some of these phenomena.

PSP assigns some degree of stress (tertiary, in Halle-Keyser; secondary, in Chomsky-Halle) to vowels in

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Simplified List of Rules

(1) Simplified Main Stress Rule in Deabbreviated Form

(1a) $V \rightarrow [1\ \text{stress}] / X_C_0 \begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1 \begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} C_0$

(1b) $V \rightarrow [1\ \text{stress}] / X_C_0 \begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} C_0$

(1c) $V \rightarrow 1\ \text{stress} / X_C_0 \begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1 (=C_0) \begin{bmatrix} 2\ \text{stress} \\ 1\ \text{stress} \\ V \end{bmatrix} C_0 (y)$

(1d) $V \rightarrow [1\ \text{stress}] / X_C_0 (=C_0) \begin{bmatrix} \{2\ \text{stress} \\ 1\ \text{stress}\} \\ V \end{bmatrix} C_0 (y)$

(1e) $V \rightarrow [1\ \text{stress}] / X_C_0$

(2) Alternating Stress Rule

$V \rightarrow [1\ \text{stress}] / X_C_0 (=C_0)\ VC_0 \begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} C_0$

(3) Compound, Nuclear, and Stress Adjustment Rule

$\begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} \rightarrow [1\ \text{stress}] / \#\#X__Y(\#\#Z)_a\ \#\#\ \{N, V, A\}_b$

X and Y may contain ##
Y contains no 1 stress; if a, then b

(3') The Stress Adjustment Rule: Subrule of 3

$\begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} \rightarrow [1\ \text{stress}] / \#\#X__Y\#\# \{N, V, A\}$

(4) Auxiliary Reduction III: Pretonic Stress Placement: PSP

$V \rightarrow \begin{bmatrix} \text{stress} \\ 3 \end{bmatrix} / \#\#C_0 \left\{ \begin{matrix} X_(C_0=)C_0 \left(\begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1 \right) \begin{bmatrix} \alpha\ \text{stress} \\ V \end{bmatrix} C_0 \begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} \\ \left[\overline{+\ \text{tense}} \right] \\ __C_2 \end{matrix} \right\} Y\#\#$

$\alpha \geq 4$

Deabbreviated Pretonic Stress Placement

(4a) $V \rightarrow [3\ \text{stress}] / \#\#C_0X_C_0 \begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1 \begin{bmatrix} \text{stress} \\ V \end{bmatrix} C_0 \begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} Y\#\#$

(4b) $V \rightarrow 3\ \text{stress} / \#\#C_0X__C_0 \begin{bmatrix} \text{stress} \\ V \end{bmatrix} C_0 \begin{bmatrix} 1\ \text{stress} \\ V \end{bmatrix} Y\#\#$

(4c) $V \rightarrow 3\ \text{stress} / \left\{ \begin{matrix} \left[\overline{+\ \text{tense}} \right] \\ _____C_2 \end{matrix} \right\}$

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syllables left stressless after applications of the Main Stress Rule, thus preventing these vowels from undergoing the vowel reduction rules. PSP 4c assigns a tertiary stress to strong clusters as in words like $\overset{3}{\text{asbestos}}$, $\overset{3}{\text{audacious}}$, and $\overset{3}{\text{Montana}}$ although there are exceptions like confetti and Atlanta. It may not be the case that there is a tertiary stress at the phonetic level in all these words. I am more interested, however, in PSP 4a and 4b. There are at least three classes of words that these subrules apply to. First, there are such lengthy polysyllabic, monomorphemic words as $\overset{3}{\text{mulligatawny}}$, $\overset{3}{\text{Winnipesaukee}}$, $\overset{3}{\text{Kalamazoo}}$, and $\overset{3}{\text{Oklahoma}}$, whose initial syllables are stressed by these rules. The second group of words contains polymorphemic ones like $\overset{3}{\text{overthrow}}$, $\overset{3}{\text{superpose}}$, and $\overset{3}{\text{automobile}}$, which are not treated like complex or compound words, and whose initial syllables are stressed by these rules. The final set of words, which I will not have space to discuss here, are those like $\overset{3\ 4}{\text{exaltation}}$ and $\overset{3\ 4}{\text{relaxation}}$, where the first syllable has more stress than the second even though the second syllable receives the main stress in the plain verb form.

Let us first consider the lengthy polysyllables not formally analyzable into smaller units. There are many non-native proper nouns in this list, which includes words such as mulligatawny, Winnipesaukee, Monongahela, Oklahoma, Conestoga, rhododendron, Coriolanus, and Alexander. According to rigorous linguistic analyses, such words contain only one morpheme. I suggest, however, that the native speaker may well divide them into two morphic units. (I shall call the native speaker's units morphs, and the linguist's, morphemes. Frequently, of course, morphs and morphemes coincide, but not, I argue, in words like these.)

Let me illustrate how this putative morphic analysis affects stress placement before I try to support it with other evidence. On the next page I illustrate stress placement, both with and without this analysis, for Winnipesaukee, Monongahela, and Oklahoma. In my proposed analysis I assume a division for each word into two morphs. Each morph besides Winnipe- would be stressed by Main Stress 1b on the penult. Winnipe- is stressed by Main Stress 1a, which ignores two weak clusters and places stress on the antepenultimate syllable. Main Stress 1b will apply on the second cycle to the penultimate syllable of each word reducing the primary stress assigned in the first morph of each word. The stressed syllable rules 1c and 1d do not apply, since the primary stress is not on the final syllable. Finally, Stress

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Adjustment 3' reduces the initial stress to a tertiary. The derivation is much like that of complex nouns like parallelepiped (Chomsky-Halle 1968:102). Incidentally, division of Winnipeesaukee into Winni- and -pesaukee does not change the results.

(5) Comparison of the Proposed Analysis with the Chomsky-Halle Analysis

Proposed Analysis			Chomsky-Halle Analysis
[N [winnipe]S [sAUkee]S]N			[N winnipesAUkee]N
1		Main Stress 1a	
	1	Main Stress 1b	1
2	1	Main Stress 1b	
3	1	Stress Adjustment 3'	
		PSP 4a	3 1
[N [mononga]S [hEla]S]N			[N mononganEla]N
		Main Stress 1a	
1	1	Main Stress 1b	1
2	1	Main Stress 1b	
3	1	Stress Adj. 3'	
		PSP 4b	3 1
[N [Okla]S [shOma]S]N			[N OklahOma]N
		Main Stress 1a	
1	1	Main Stress 1b	1
2	1	Main Stress 1b	
3	1	Stress Adj. 3'	
		PSP 4b	3 1

Let me note at this point that my analysis, if suportable, explains why PSP and the Main Stress Rule are so similar. The tertiary stress on PSP is placed either two or three syllables before the primary stress depending on where the primary stress would have been placed if this phonological portion had been considered to be an independent morpheme. That is to say that, for words such as these, PSP must be formulated as it is because it is a redundant ad hoc device which resembles the Main Stress Rule simply because it is a repetition of the Main Stress Rule. If the hypothetical morphic division assumed here approximates the native speaker's intuitions, two cycles through the Main Stress Rule achieve the results of PSP without the addition of that rule. What I

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have just observed about words like these applies equally well to many other such words with no more problems than the Chomsky-Halle analysis would have.

Let me briefly consider words with final stress like Kalamazoo. Number 6 contrasts the Chomsky-Halle analysis with mine. Notice that for the Chomsky-Halle analysis the word must be marked as an exception to the Alternating Stress Rule 2, for it would otherwise produce Kalamazoo. For my analysis both the stressed syllable rule, Main Stress 1c and Alternating Stress 2 must be blocked, for either would produce the form Kalamazoo. I suggest that for proper nouns analyzed into two stems a readjustment rule would predict in a single word boundary (#) between the stems. Both the stressed syllable rule and Alternating Stress will be blocked by this boundary. Thus I can generalize the rule-blocking conditions on such words in a natural way, not available to Chomsky and Halle. Some other words like this are Timbuktu, Tippecanoe, and perhaps Tennessee. It is also possible that some form of the Compound Rule 3 applies to such words in place of the analysis I have given.

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(6) Comparison of Analyses for Kalamazoo

Proposed Analysis			Chomsky-Halle Analysis
[N [S kalama]S [S zoo]S]N			[N kalamazoo]N
1		Main Stress 1a	1
	1	Main Stress 1e	
2	1	Main Stress 1e	
3	1	Stress Adj. 3'	
		PSP 4a	3 1

In illustrating and discussing my analysis, I have, of course, been also really arguing for it. Before offering additional arguments, let me remark that Chomsky, Halle, and Keyser are not at all certain that we understand the internal structure of lexical units. Let me quote at length a disclaimer from English Stress (1971: 20):

> The question of how words are constituted from more primitive elements such as roots, stems, and affixes is one of the least understood problems in modern linguistics. We are unfortunately not in a position to

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> to shed much new light on this matter. Therefore we shall assume without discussion or justification that a grammar contains rules of word formation and that one of the effects of these rules is the correct placement of word boundaries in strings of morphemes, that is, in strings composed of primitive elements. As a first approximation we propose that word boundaries are assigned to all sequences of morphemes that constitute a member of a lexical category, i.e., a noun, verb, or an adjective. As our discussion develops, however, we shall see that this straightforward principle is not fully adequate.

As may be apparent by now, I am not even sure that we can yet always know the morphemic structure (or morphic structure, at any rate), let alone the internal bracketing.

I have suggested that the native speaker makes a morphic analysis that may differ from the linguist's morphemic analysis. If a word does not break down into units that recur elsewhere, the linguist does not recognize any smaller units within it. I think it likely that the native speaker is not bound by this constraint that the partial unit must recur. Instead, he has certain expectations about the size of root morphemes, expectations based on the large number of words that he has previously encountered. Most words of more than three syllables can be analyzed into smaller units. Therefore, if he encounters new words of excessive length, he is likely to break them into morphic units, tacitly assuming,if these are unique morphs, that he just has not run into other words in which they might occur.

I am not prepared to prescribe the exact maximum morphic length for Englisn although it is probably at about three syllables with a single heavy stress. Some few words, like mahogany perhaps, might be exceptions. The optimum length is probably one syllable. Nida, in discussing the canonical form of English morphemes, notes that although they could theoretically be of any size or shape, they seem to be quite short. The most complicated shape that he mentions is two syllables long, exemplified by goulash and talmud, which are borrowed words with some stress on both syllables. Most English roots, he says, are monosyllabic (1952:65-66).

My proposal may seem repugnant because of the difficulty of verifying it. However, the difficulties associated with my view of lexical structure are no greater

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than those associated with our present views of syntactic and phonological structure. It would be simpler if linguistic structure were transparently analyzable from a taxonomy of the linguistic signal. In our attempt to write grammars that model those of the native speaker we have learned to formulate new analyses less directly verifiable, but based on indirect evidence and on the principle of simplicity. Since I have already argued on the latter grounds, I will turn to the indirect evidence.

There are at least two kinds of morph reshaping processes that can be interpreted as evidence in favor of my hypothesis. One of them is clipping, which regularly reduces word length to two syllables or less. Back-clipping, the deletion of the end of a word, as when advertisement becomes ad, is more frequent than fore-clipping, which removes the beginning of the word, as when telephone becomes phone (Marchand 1969:444-445). Such word shortening, occurring in more frequently used words, indicates, I suggest, an intuition about normal morphic shape. Although a word may be clipped at a morpheme boundary, as in plane from airplane, it may be clipped across such a boundary, as in ad lib from ad libitum or the clipped form may stop short of a boundary, as in doc from doctor. Marchand says that "the clipped part is not a morpheme in the linguistic system (nor is the clipped result, for that matter), but an arbitrary part of the word form" (1969: 441). Against his position that clipping is only a phonological process, I would counter that, whether phonologically shaped or not, the end result does indicate a morphic analysis: new free forms are created and then treated as regular morphemes. The native speaker does not always make a careful linguistic analysis, but he does make a linguistic analysis. For example, burger is a fore-clipping of hamburger, violating the original morphemic boundary, and has become a new combining form in many other words: cheeseburger, beanburger, taco-burger, etc. It is interesting to note that three of the long unanalyzable polysyllables listed by Chomsky and Halle have been clipped in one way or another. Stogey is formed from Conestoga, the morph with main stress becoming an independent morpheme. In the clipped adaptation Okie the morph with tertiary stress becomes the basis of the new form. And Alexander has two shortenings: Alex and Alec, both based on the first part of the word.

Another kind of morph reshaping occurs in the lexical reanalysis sometimes called "folk etymology." I quote part of Raimo Anttila's discussion of this

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phenomenon (1972: 92):

> Loanwords are often subject to this, because they are unanalyzable in the adopting language and have forms unusually long compared with the established morphemes of the language. A word like asparagus is rather long for one morpheme in English and gave way to sparrow grass, which more or less retains the same number of consonants. What is important is that the form is now a compound built up of known elements. There is even a fair amount of semantic justification in that the vegetable is a kind of grass.

After giving more examples of total morphemic reinterpretation with semantic justification, he says:

> Semantic justification is not a prerequisite, because form is after all independent of meaning. When cucumber gives cow cumber, or Ojibwa otchek—woodchuck, part of the arbitrary form still remains, but the arbitrary part is shorter and the total seems to fit the rest of the vocabulary better because of the native passport in the first part.

Such iconic reshaping shows more obviously than clipping does the morphic analysis of long words by the native speaker. It is worthy of note that a meaningless morph like cumber may remain. I suggest, of course, that in words like Winnipesaukee and Minnesota the morphic analysis may occur without obvious iconic reshaping of the meaningless morphs.

The reshaping of otchek into woodchuck, bridegoom into bridegroom, and samblind into sandblind gives us some clue about the canonical shape of English morphemes. The cause of reshaping is probably the inherited stress on both syllables of each word. The speaker needs to make morphic sense, if possible, out of goom in bridegoom for it to retain the stress it would have had in the Old English word for "man," guma. The canonical shape for roots seems to be a single stressed syllable with an optional unstressed syllable. The maximal shape will include an additional unstressed syllable or, occasionally perhaps, may allow stress on each of two syllables as in goulash, which, however, is more likely than other words to be analyzed as two morphs.

Let me now turn to compounds like overthrow and superpose. Number 7 contrasts the Chomsky-Halle

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analysis with mine. They assume no bracketing for the prefixes in these words, since they are not major lexical items. In overthrow, which is similar to superpose, Main Stress 1e assigns primary stress to the last syllable. Alternating Stress 2 would be blocked by a word boundary before throw. On the second cycle, after 1e has vacuously applied, PSP assigns tertiary stress to the first syllable of the prefix. Also superimpose would be analyzed similarly, and as in Winnipesaukee, PSP will imitate the Main Stress Rule in assigning tertiary stress three syllables back, again putting it on the first syllable of the prefix. I propose a separate bracketing of the prefix, tentatively labeled PREFIX. I then assume the assignment of major stresses to both the prefix and the root in words like overthrow and the reassignment of stress on the root in the second cycle, reducing the stress on the prefix.

(7) Comparison of analyses for overthrow

Proposed analysis			Chomsky-Halle analysis
$[_V[_P$over$]_P[_V$throw$]_V]_V$			$[_V$over $[_V$throw$]_V]_V$
1		Main Stress 1b	
	1	Main Stress 1e	1
2	1	Main Stress 1e	1
3	1	Stress Adj. 3'	
		PSP 4b	3 1

There are indirect justifications for my analysis. First, it works analogously to the analyses I have been discussing. Furthermore, I should like to treat disyllabic prefixes like over and super (which may be monosyllabic in underlying phonological structure) as parallels to certain monosyllabic prefixes. Chomsky and Halle do not give prefixes the attention they deserve. The negative prefixes regularly receive tertiary stress. For example, in 3 1 unable, 3 1 uncertain, 3 1 inept, 3 1 uncork, 3 1 amoral, etc. Another prefix generally showing such stress is out as in the verb outbid. The evidence is strong, then, that these prefixes are fully stressed at some point in a derivation. PSP 4c will not assign tertiary stress on the prefixes in words like unable and inept, which have weak initial clusters. If it is assumed that each morpheme received a primary stress in the first cycle of the stress rules, then the primary stress placement in the final morpheme during the second cycle and the stress re-

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duction rule would account for the tertiary stress on words like overthrow and inept.

Before concluding, I wish to remark again that I have not had the space to consider alternations like exalt and exaltation, where some kind of pretonic stress placement may apply. If it does, I suggest that it does not involve the weak cluster principle of the Main Stress Rule.

In conclusion, let me say that my proposals about the pretonic stress rule, while not clearing up all problems, have important consequences. First, a redundancy in the statements of the Main Stress Rule and PSR is eliminated. Second, I insist that serious attention must be given to the question of speaker intuitions about lexical analysis and rule applications. I agree with Chomsky, Halle, and Keyser that we need to know much more about lexical analysis. Particularly, we need to give more study to prefixation and to native speakers' intuitions about it. Finally, let me suggest that one way of acquiring evidence upon which to theorize is to submit a written list of difficult and contrived words to native speakers in order to see how their rules operate on unfamiliar words. I find it interesting that Kenyon and Knott (1944) report the stress pattern Tĕrpsĭchore for the noun and Tĕrpsichŏrean for the adjective while Webster's Seventh Collegiate reports Tĕrpsĭchore, and either tĕrpsichŏrean, tĕrpsĭchŏrean, or tĕrpsichŏrean. Such variations testify to analyses based on written, not oral, encounters with words like this and remind us that native speakers' intuitions vary. A classful of students opted for tĕrpsichŏrean, my own private pronunciation derived from reading, not hearing, the word, which presumably reveals something about my active rules.

BIBLIOGRAPHY

Antilla, Raimo. 1972. Introduction to historical and comparative linguistics. New York: Macmillan.

Chomsky, Noam, and Morris Halle. 1968. Sound pattern of English. New York: Harper & Row.

Halle, Morris, and Samuel Jay Keyser. 1971. English stress: its form, its growth, and its role in verse. New York: Harper & Row.

BEST COPY AVAILABLE

Kenyon. John S., and Thomas A. Knott. 1944. A pronouncing dictionary of American English. Springfield, Mass.: G. & C. Merriam Company.

Marchand, Hans. 1969. The categories and types of present-day English word-formation: a synchronic-diachronic approach. Second edition. München: C. H. Beck'sche Verlagsbuchhandlung.

Nida, Eugene. 1949. Morphology: the descriptive analysis of words. Ann Arbor: University of Michigan Press.